

**Building 834—Cost-Effective and Innovative  
Remediation System Design Utilizing  
Former Weapons Programs' Surplus  
Equipment**

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The Building 834 Complex at the Lawrence Livermore National Laboratory's (LLNL) Site 300 experimental test facility is a thermal stress testing facility. Until 1994, the heat exchange system at Building 834 used trichloroethylene (TCE) as the primary heat transfer media. Between the early 1960s and early 1980s, approximately 550 gallons of TCE were released to the environment, creating a highly concentrated, 16 acre-foot VOC plume in a shallow perched water-bearing zone underlying the complex. Ground water samples collected from monitor wells close to the release sites have contained TCE concentrations exceeding 800 ppm, indicating the likelihood of DNAPL.

Over the last five years we have constructed and operated a modular ground water and soil vapor extraction system for remediating the source area of this plume. In designing the treatment system, we have made extensive use of surplus stainless steel sparge tanks, valves, and other equipment from other divisions and former weapons program projects at LLNL. Due to the high TCE concentrations in extracted ground water, stainless steel equipment is necessary to prevent VOC sorption/desorption problems experienced with conventional plastic treatment system materials. Thus far, this "swords to plowshares" program has saved the Environmental Restoration Division over \$400,000.

With the completion of an Interim Record of Decision and support from our regulatory agencies and local stakeholders, we have also initiated the use of this facility as a test bed for new technologies that may speed remediation and reduce the quantity of extracted wastes, and thus reduce the overall cost of remediation.

\*Presenting author at conference.

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